

REMARKS

Claims 1-9, 11-86, 88-94 and 105 are pending in the present application. The Examiner has rejected claims 1-9, 11-86, 88-94 and 105 under 35 U.S.C. §103(a). Applicant has amended claims 1, 49, and 105. No new matter has been added.

Section 103 Rejections

Claims 1-9, 11-29, 33-35, 37-42, 45, 47, 49-51, 53, 55, 58-80, 84-85, 87-92, and 105 were rejected under 35 U.S.C. §103(a) as being obvious over Abreu, *et al.*, “Video-Based Multi-Agent Traffic Surveillance System”, Proceedings of the IEEE 2000 Intelligent Vehicles Conference, 4-5 October 2000, pgs. 457-462 (hereinafter VM), in view of U.S. Patent Application Publication No. 2007/0154067 (Laumeyer, *et al.*).

Claims 30-32, 46, 48, 52, 54, and 81-83 were rejected under 35 U.S.C. §103(a) as being obvious over VM.

Claims 36, 43-44, 56-57, 86, and 93-94 were rejected under 35 U.S.C. §103(a) as being obvious over VM in view of U.S. Patent No. 5,761,326 (Brady, *et al.*).

Applicant urges that at the very least, the combination of VM and Laumeyer fails to disclose or suggest Applicant’s *method for detecting one or more objects belonging to the same object class comprising the steps of . . . applying one or more classifiers to detect components of objects in an image frame in the video sequence. . . computing a confidence score based in part on the response from the one or more component detectors; . . .; and accumulating confidence scores from the component detectors to determine if an object is detected, wherein said method is adapted for detecting moving and stationary objects from a moving or stationary video camera*, as essentially recited in claims 1, 49, and 105. In VM, the area being monitored remains the same and thus VM deals with a static background scene of the same area. Applicant’s method is *adapted for detecting moving and stationary objects from a moving or stationary video camera*. VM uses a change detector to detect moving objects (e.g. vehicles) from a background scene. A change detector cannot be used with a moving camera, because the background is not static, as the image scenes captured by the camera are continuously changing. Applicant’s method uses a

classifier to determine if a vehicle (moving or stationary) is detected from a moving or stationary video camera. Note that when the host vehicle stops for a period of time, the camera will capture static scenes for that period. The additional classifiers used in VM distinguish between different moving objects, e.g. cars, trucks, motorbikes, etc, so the classifiers in VM deals with classes of cars, trucks, motorbikes and other objects alike. Applicant's classifier distinguishes objects from non-objects, i.e. image areas where no vehicle is detected. The Examiner acknowledged that VM fails to teach a method adapted for use with a moving video camera, but then cites Laumeyer as disclosing this limitation. Laumeyer is directed to building a database of road signs by processing images of roadside scenes obtained from a moving vehicle. Road signs are stationary, unlike vehicles which can move, and a method adapted for detecting stationary objects from a moving vehicle is not sufficient for detecting moving objects from a moving vehicle. Thus, Applicant urges that Laumeyer does not disclose a method *adapted for detecting moving and stationary objects from a moving or stationary video camera*, as recited in claims 1, 49, and 105.

Further regarding claim 1, the Examiner has cited VM, page 459, left column, lines 26-29 to allege that VM teaches the claim 1 limitation that *the component classifiers include classifiers for detecting components at multiple scales*. Applicant respectfully disagrees. The cited section of VM discloses classification methods based on matching the observed size of a mobile object with previously gathered information of typical sizes of objects. VM uses this information to decide what type (i.e. car, truck, motorbike, person, etc.) that a mobile object is. However, VM does not address detecting vehicle components of different sizes. Thus, the Examiner is incorrect in alleging that the component classifiers include classifiers for detecting components at multiple scales VM's matching of mobile objects of different sizes implies that different scales are used to detect object components.

Regarding claim 105, the Examiner cites VM's description of how a 3-dimensional shape is inferred from 2D extracted objects as disclosing the claim 105 limitation that *the one or more classifiers include overlapping component classifiers*. However, VM nowhere discloses component classifiers, and the cloud of 3D points disclosed in VM are not equivalent to *overlapping component classifiers*, contrary to the Examiner's assertion.

Regarding claim 49, the Examiner cites VM's description of how typical trajectories are determined as disclosing the claim 49 limitation that *the accumulated confidence scores is inferred from confidence scores across multiple frames using a recursive filter*. However, Applicant urges that trajectory is a concept unrelated to confidence scores. Trajectory refers to the position of a moving object over time. VM does not accumulate confidence scores *inferred from confidence scores across multiple frames*.

Since the combination of VM and Laumeyer fails to disclose or suggest all of the limitations of independent claims 1, 49, and 105, these claims are not obvious VM and Laumeyer. Reconsideration and withdrawal of these rejections are respectfully requested.

Claims 2-9, 11-35, 37-42, 45-48, 50-55, 58-85, and 87-92, all depend from either claim 1 or claim 49, are patentable for at least the same reasons as claims 1 and 49. Reconsideration and withdrawal of these rejections are respectfully requested.

Regarding the rejection of claims 36, 43-44, 56-57, 86, and 93-94, Brady is directed to a machine vision system that acquires images from roadway scenes and processes the images by analyzing the intensities of edge elements within the image. Brady applies fuzzy set theory to the location and angles of each pixel after the pixel intensities have been characterized by vectors. However, Brady does not rectify the deficiencies of VM and Laumeyer, discussed above, and thus Applicant urges that a *prima facie* case of obviousness against claims 36, 43-44, 56-57, 86, and 93-94 over VM, Laumeyer and Brady cannot be maintained. Reconsideration and withdrawal of these rejections are respectfully requested.

CONCLUSION

Applicant urges that claims 1-9, 11-86, 88-94, and 105, as amended, are in condition for allowance for at least the reasons stated. Early and favorable action on this case is respectfully requested.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Michele L. Conover".

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